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EXAMINER

HENDRICKS, KEITH D

ART UNIT PAPER NUMBER

1761

DATE MAILED: 09/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/668,921

Applicant(s)

MILJKOVIC ET AL.

Examiner

Keith Hendricks

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-20, drawn to a fermentation medium comprising a cytokinin, and method of making said medium, classified in class 435, subclass 244, or class 426, subclass 16 or 28.
- II. Claim 21, drawn to a method of marketing a product, classified in class 715, subclass 952.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions each have vastly different designs, modes of operation, and effects. The product and method of Group I does not require or involve the marketing features of Group II.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art due to their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

During a telephone conversation with Martin Fessenmaier on September 6, 2006, a provisional election was made without traverse to prosecute the invention of Group I, claims 1-20. Affirmation of this election must be made by applicant in replying to this Office action. Claim 21 is hereby withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

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Claim Objections

Claim 14 is objected to because of the following informalities: At line 4, the phrase “is present the fermentation medium” should read “is present in the fermentation medium.” Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation of a selection from a group of elements in a claim should comply with accepted U.S. Patent practice with regard to the recitation of Markush grouping of claim elements. Phrases using “comprising” are open sets, and should recite elements in the alternative (i.e. “comprising A, B, C or D”), whereas closed sets (“consisting of”) should recite elements as “selected from the group consisting of A, B, C and D.” In the instant case of claims 11 and 20, the phrase “at least one of ethanol and carbon dioxide” should recite the elements in the alternative, i.e. “at least one of ethanol or carbon dioxide.”

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

i) Claims 1-6, 8-11, and 14-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Taller et al. (App. Environ. Microb., 1989).

Taller et al. disclose the fact that the “inoculation of plants with *Azotobacter* spp. influences plant growth and development, sometimes increasing yields” (first line of pg. 266). “Cytokinins have been

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found in the culture media of several *Azotobacter* species (third sentence of pg. 266). “The report presented here describes the cytokinins present in *A. vinelandii* culture medium. Three cytokinin-active substances were found and tentatively identified as trans-zeatin, isopentenyladenosine, and isopentenyladenine” (pg. 266, col. 1). Following the formation/production of the cytokinins in the culture medium, the cytokinins were concentrated and incorporated into a second culture medium, whereby tobacco callus (extract) were planted in each flask containing said medium (pg. 266, col. 1-2).

Thus the reference anticipates the instant claims. The instant product claims simply require a fermentation medium containing a “cytokinin-containing preparation” in a concentration effective to increase the fermentation of a microorganism. The cytokinin amounts recited in the reference would be expected to function as instantly claimed, i.e. to increase fermentation and carbohydrate uptake of the microorganism, absent any clear and convincing evidence and/or arguments to the contrary. The Patent Office does not possess the facilities necessary to test the actual product composition; however, a reasonable rejection has been set forth explaining why the reference meets the instant claims, and thus the burden shifts to applicant to demonstrate that the reference would not anticipate the claims.

The claims read upon any type of “media” that contains a cytokinin, for any fermentation purpose, whether it is used for the growth of a microorganism or that of plant cells, for example. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Thus, as the rough plant extract, or callus, was stated to be inserted into the cytokinin-containing fermentation media of Taller et al., this meets the limitations of instant claim 6.

Although the claims do not specifically state that a microorganism is present, nevertheless this has been met by the reference. Regarding applicant’s attempted definition of a “fermentation medium” at page 4 of the specification, it is noted that these features upon which applicant relies are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The common definition and usage of the phrase “fermentation medium” does not require the presence of a microorganism. Furthermore, because the bacteria secrete the cytokinins into the culture media, it does not naturally contain the cytokinins.

Regarding the recitation of instant claim 11, the phrase “the fermentation medium is a liquid” does, in fact, describe a further limitation of the claim from which it depends. However, the second part of the claim, “wherein the fermentation comprises production of at least one of ethanol and carbon

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dioxide”, does not further limit the invention, because the claim is directed to a product, i.e. the medium, and thus any limitation of a process of use would not provide a further distinction. Similarly, claim 20 does not further limit claim 1 in this regard. Furthermore, the recitation of the microorganism as being a yeast, does not specifically indicate or require that yeast be present within the medium; only that the “increase fermentation of a microorganism” effect would be upon a yeast at some future point in time.

ii) Claims 1-12 and 14-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Outterson (Brewing Techniques; Great Commercial Beer from Malt Extract).

Outterson describes a brewing process for producing beer utilizing malt extract. The second page of the article describes the role of yeast in the fermentation media, along with the addition of the malt extract. Thus the reference anticipates the instant claims.

NOTE: Brewer’s yeast is a strain of *Saccharomyces* yeast.

NOTE: Malt extract inherently contains various cytokinins. As evidence of this fact, for example see Van Staden, J. & Drewes, S. E.; pub. 1975. Isolation and identification of zeatin from malt extract. *Plant Science Letters* 4: 391-394. (article unavailable). As malt extract is a concentrated form of naturally-occurring barley, it meets condition number 1 recited at page 4, lines 20-28 of applicant’s specification, namely that it is “enriched in at least one cytokinin (e.g. which may naturally occur in that composition).” Malt extract would therefore have an “enriched”, or concentrated, amount of cytokinin over a natural malt/barley preparation. In support of this position, it is noted that the paragraph spanning pages 10-11 of applicant’s specification states that fermentation media comprising malted barley extract (aka, malt extract) is “especially preferred.” Furthermore, at page 12, lines 5-8 of applicant’s specification, it is stated that “where the cytokinin-containing preparation comprises an extract that is enriched in one or more cytokinins (e.g., malted barley extract, or yeast extract), it should be recognized that the appropriate amount of the extract can be determined by a person of ordinary skill in the art without undue experimentation.” Thus, the reference also meets the limitations of claims 6-7.

Although the reference does not specifically mention an amount of cytokinin present in the fermentation medium, one of ordinary skill in the art would expect this to be sufficient to meet the instant claims. The amounts provided in the reference would be expected to function as instantly claimed, i.e. to increase fermentation and carbohydrate uptake of the microorganism, absent any clear and convincing evidence and/or arguments to the contrary. The Patent Office does not possess the facilities necessary to test the actual product composition; however, a reasonable rejection has been set forth explaining why

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the reference meets the instant claims, and thus the burden shifts to applicant to demonstrate that the reference would not anticipate the claims.

iii) Claims 1-6, 8-11, and 14-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Prosper Nitro Active ® Product Guide.

The Prosper Nitro Active ® (hereinafter, PNA) guide discloses a soil inoculant formulation which is produced to keep bacteria alive in solution. This “not only contains a broad spectrum of beneficial bacteria, but also contains cultures for feeding the bacteria once they are diluted and come out of dormancy” (middle of first page). The PNA product contains several types of bacteria, the fungus *Aspergillus oryzae*, and “cytokinin extract of kelp”, which is stated to be a “powerful growth hormone and stress reliever.” “All the ingredients assist in the breakdown of plant residues and other organic matter in the soil and converting them to humus.” (all of the above are taken from the first page of the guide). “Each of the strains of microorganisms, the enzymes and other factors in Prosper Nitro Active are produced with laboratory type fermentation and culturing” (top, pg. 2). Thus the reference anticipates the instant claims.

Thus the reference anticipates the instant claims. The instant product claims simply require a fermentation medium containing a “cytokinin-containing preparation” in a concentration effective to increase the fermentation of a microorganism. The cytokinin amounts recited in the reference would be expected to function as instantly claimed, i.e. to increase fermentation and carbohydrate uptake of the microorganism, absent any clear and convincing evidence and/or arguments to the contrary. The Patent Office does not possess the facilities necessary to test the actual product composition; however, a reasonable rejection has been set forth explaining why the reference meets the instant claims, and thus the burden shifts to applicant to demonstrate that the reference would not anticipate the claims.

The claims read upon any type of “media” that contains a cytokinin, for any fermentation purpose, whether it is used for the growth of a microorganism or that of plant cells, for example. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Regarding the recitation of instant claim 11, the phrase “the fermentation medium is a liquid” does, in fact, describe a further limitation of the claim from which it depends. However, the second part of the claim, “wherein the fermentation comprises production of at least one of ethanol and carbon dioxide”, does not further limit the invention, because the claim is directed to a product, i.e. the medium,

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and thus any limitation of a process of use would not provide a further distinction. Similarly, claim 20 does not further limit claim 1 in this regard. Furthermore, the recitation of the microorganism as being a yeast, does not specifically indicate or require that yeast be present within the medium; only that the “increase fermentation of a microorganism” property could also be effective upon a yeast at some future point in time.

iv) Claims 1-10 and 13-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Hickenbottom (Malt Products Corporation).

Hickenbottom discloses the use of malt extract in a flour-based dough for the production of bagels. Fermentation of the dough is carried out by yeast, where the dough contains 4.5% liquid malt (see the paragraph above the chart entitled “Typical Bagel Formula”). At the fifth page of the article, in the paragraph directly preceding the chapter entitled “How Can Malt Improve Your Bagel?”, it is stated that malt provides maltose, dough conditioning enzymes, etc., “and nutritive materials which promote vigorous yeast activity.” Thus, the disclosed malt extract added to a dough for bagel fermentation and production, meets the instantly-claimed invention. See especially claims 6-7 and 13.

NOTE: Baker’s yeast is a strain of *Saccharomyces* yeast.

NOTE: Malt extract inherently contains various cytokinins. As evidence of this fact, for example see Van Staden, J. & Drewes, S. E.; pub. 1975. Isolation and identification of zeatin from malt extract. *Plant Science Letters* 4: 391-394. (article unavailable). As malt extract is a concentrated form of naturally-occurring barley, it meets condition number 1 recited at page 4, lines 20-28 of applicant’s specification, namely that it is “enriched in at least one cytokinin (e.g. which may naturally occur in that composition).” Malt extract would therefore have an “enriched”, or concentrated, amount of cytokinin over a natural malt/barley preparation. In support of this position, it is noted that the paragraph spanning pages 10-11 of applicant’s specification states that fermentation media comprising malted barley extract (aka, malt extract) is “especially preferred.” Furthermore, at page 12, lines 5-8 of applicant’s specification, it is stated that “where the cytokinin-containing preparation comprises an extract that is enriched in one or more cytokinins (e.g., malted barley extract, or yeast extract), it should be recognized that the appropriate amount of the extract can be determined by a person of ordinary skill in the art without undue experimentation.” Thus, the reference also meets the limitations of claims 6-7.

Although the reference does not specifically mention an amount of cytokinin present in the fermentation medium, one of ordinary skill in the art would expect this to be sufficient to meet the instant claims. The amounts provided in the reference would be expected to function as instantly claimed, i.e. to

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increase fermentation and carbohydrate uptake of the microorganism, absent any clear and convincing evidence and/or arguments to the contrary. The Patent Office does not possess the facilities necessary to test the actual product composition; however, a reasonable rejection has been set forth explaining why the reference meets the instant claims, and thus the burden shifts to applicant to demonstrate that the reference would not anticipate the claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith Hendricks whose telephone number is (571) 272-1401. The examiner can normally be reached on M-F (8:30am-6pm); First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571) 272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


KEITH HENDRICKS
PRIMARY EXAMINER